

IN THE CLAIMS:

Please cancel claims 1-34 without prejudice or disclaimer, and substitute new claims 35-68 therefor as follows:

Claims 1-34 (Cancelled).

35. (New) A method for estimating the transfer function of a transmission channel over which a pilot signal and a data signal are transmitted, said pilot signal comprising sets of known symbols each transmitted over a given time slot, and said data signal comprising dedicated pilot fields comprising respective sets of known symbols each transmitted over a respective time slot, comprising the steps of:

obtaining first and second channel estimates from said pilot signal and said data signal, respectively;

combining said first and second channel estimates to obtain final combined channel estimates;

obtaining said first and second channel estimates over a basic estimation reference time;

interpolating said second channel estimates over said basic estimation reference time to produce a number of interpolated second channel estimates over said basic estimation reference time derived from said data signal equal to the number of said first channel estimates over said basic estimation reference time derived from said pilot signal; and

obtaining said final combined channel estimates as a sum of said first channel estimates and said interpolated second channel estimates.

36. (New) The method of claim 35, comprising the step of mapping at least one of said first and second channel estimates onto said basic estimation reference time.

37. (New) The method of claim 35, comprising the steps of:
obtaining said first channel estimates over a respective estimation reference time; and
selecting said basic estimation reference time equal to said respective estimation reference time.

38. (New) The method of claim 37, comprising the step of mapping said second channel estimates onto said respective estimation reference time.

39. (New) The method of claim 35, comprising the step of obtaining said final combined channel estimates as a weighted sum of said first channel estimates and said interpolated second channel estimates.

40. (New) The method of claim 36, wherein said step of mapping comprises the steps of:

integrating said at least one of said first and second channel estimates over said basic estimation reference time if the length of said given time slot or respective time slot is shorter than said basic estimation reference time;

splitting said at least one of said first and second channel estimates over a plurality of said basic estimation reference times if the length of said given time slot or respective time slot is longer than said basic estimation reference time.

41. (New) The method of claim 40, wherein said step of splitting comprises the steps of:

splitting said at least one of said first and second channel estimate into corresponding estimates associated to a plurality of said basic estimation reference times if said at least one of said first and second channel estimates have been evaluated over a slot larger than said basic estimation reference time; and

integrating said at least one of said first and second channel estimates over said basic estimation reference time if said at least one of said first and second channel estimates has been evaluated over a slot smaller than said basic estimation reference time.

42. (New) The method of claim 35, wherein said interpolation is a linear interpolation.

43. (New) The method of claim 35, wherein said interpolation is an interpolation of second channel estimates obtained from two subsequent dedicated pilot fields in said data signals.

44. (New) The method of claim 35, wherein said first channel estimates are obtained by decoding said known symbols associated with a pilot signal over a given decoding time epoch by correlating them with reference pilot symbols.

45. (New) The method of claim 44, wherein said step of decoding comprises the steps of:

if transmit diversity is adopted for said transmission channel, performing said correlation over a time equal to twice said decoding time epoch; and

if transmit diversity is not adopted for said transmission channel, performing correlation over a time equal to said decoding time epoch.

46. (New) The method of claim 35, wherein said second channel estimates are obtained from said data signals by decoding said dedicated pilot fields over a plurality of subsequent data symbols equal to a respective decoding time epoch and by correlating said decoded data symbols with reference data pilot symbols.

47. (New) The method of claim 46, wherein said step of decoding comprises the steps of:

if transmit diversity is active over said transmission channel, performing said correlation over the entire respective decoding time epoch; and

if transmit diversity is not active over said transmission channel, performing said correlation on a symbol-by-symbol basis.

48. (New) The method of claim 35, wherein said step of obtaining said first channel estimates from said pilot signal comprises the step of performing a moving average operation over estimates of said pilot signal.

49. (New) The method of claim 36, wherein said step of obtaining said first channel estimates from said pilot signal comprises the step of performing a moving average operation over estimates of said pilot signal, wherein said mapping operation is performed downstream of said moving average operation.

50. (New) The method of claim 35, wherein said transmission channel is a CDMA transmission channel.

51. (New) A system for estimating the transfer function of a transmission channel over which a pilot signal and a data signal are transmitted, said pilot signal comprising sets of known symbols each transmitted over a given time slot, and said

data signal comprising dedicated pilot fields comprising respective sets of known symbols each transmitted over a respective time slot, comprising:

at least one estimator for producing first and second channel estimates from said pilot signal and said data signal, respectively;

a combination node for combining said first and second channel estimates to obtain final combined channel estimates, said at least one estimator being configured for obtaining said first and second channel estimates over a basic estimation reference time; and

an interpolator module for interpolating said second channel estimates over said basic estimation reference time to produce a number of interpolated second channel estimates over said basic estimation reference time derived from said data signal equal to the number of said first channel estimates over said basic estimation reference time derived from said pilot signal, said combination node being a summation node producing said final combined channel estimates as a sum of said first channel estimates and said interpolated second channel estimates.

52. (New) The system of claim 51, comprising at least one rate adaptation module configured for mapping at least one of said first and second channel estimates onto said basic estimation reference time.

53. (New) The system of claim 51, wherein said at least one estimator is configured for obtaining said first channel estimates over a respective estimation reference time, and said interpolator module is configured for interpolating said second channel estimates over a basic estimation reference time equal to said respective estimation reference time.

54. (New) The system of claim 53, comprising a rate adaptation module configured for mapping said second channel estimates onto said respective estimation reference time.

55. (New) The system of claim 51, wherein said combination node is a weighted summation node producing said final combined channel estimates as a weighted sum of said first channel estimates and said interpolated second channel estimates.

56. (New) The system of claim 52, wherein said at least one rate adaptation module is configured for performing said mapping by:

integrating said at least one of said first and second channel estimates over said basic estimation reference time if the length of said given time slot or respective time slot is shorter than said basic estimation reference time; and

splitting said at least one of said first and second channel estimates over a plurality of said basic estimation reference times if the length of said given time slot or respective time slot is longer than said basic estimation reference time.

57. (New) The system of claim 56, wherein said at least one rate adaptation module is configured for:

splitting said at least one of said first and second channel estimates into corresponding estimates associated with a plurality of said basic estimation reference times if said at least one of said first and second channel estimates has been evaluated over a slot larger than said basic estimation reference time; and

integrating said at least one of said first and second channel estimates over said basic estimation reference time if said at least one of said first and second channel

estimates has been evaluated over a slot smaller than said basic estimation reference time.

58. (New) The system of claim 51, wherein said interpolator module is a linear interpolator module.

59. (New) The system of claim 51, wherein said interpolator module is configured for performing an interpolation of second channel estimates obtained from two subsequent dedicated pilot fields in said data signals.

60. (New) The system of claim 51, wherein said at least one estimator module is configured for producing said first channel estimates by decoding said known symbols associated with the pilot signal over a given decoding time epoch by correlating them with reference pilot symbols.

61. (New) The system of claim 60, wherein said at least one estimator module is configured for:

if transmit diversity is adopted for said transmission channel, performing said correlation over a time equal to twice said decoding time epoch; and

if transmit diversity is not adopted for said transmission channel, performing correlation over a time equal to said decoding time epoch.

62. (New) The system of claim 51, wherein said at least one estimator module is configured for producing said second channel estimates from said data signals by decoding said dedicated pilot fields over a plurality of subsequent data symbols equal to a respective decoding time epoch and by correlating said decoded data symbols with reference data pilot symbols.

63. (New) The system of claim 62, wherein said at least one estimator module is configured for:

if transmit diversity is active over said transmission channel, performing said correlation over the entire respective decoding time epoch; and

if transmit diversity is not active over said transmission channel, performing said correlation on a symbol-by-symbol basis.

64. (New) The system of claim 51, wherein said at least one estimator module for producing said first channel estimates from said pilot signal includes a moving average module for performing a moving average operation over estimates of said pilot signal.

65. (New) The system of claim 52, wherein said at least one estimator module for producing said first channel estimates from said pilot signal comprises a moving average module for performing a moving average operation over estimates of said pilot signal and said rate adaptation module is arranged downstream of said moving average module.

66. (New) A receiver for receiving digital signals over a transmission channel over which a pilot signal and a data signal are transmitted, said pilot signal comprising sets of known symbols each transmitted over a given time slot, and said data signal comprising dedicated pilot fields comprising respective sets of known symbols each transmitted over a respective time slot, comprising a system according to claim 51, 52, or 54.

67. (New) The receiver of claim 66, wherein said receiver is a CDMA receiver.

68. (New) A computer program product capable of being loaded in the memory of at least one computer and comprising software code portions for performing the method of any one of claims 35 to 50.